



Metro Nashville
DISTRICT ENERGY SYSTEM


*Fiscal Year 2006
District Energy System
Report to Metro Council
August 29, 2006*



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**Question 1: Performance Guarantees Contained Within
Metro's Contract With The Contractor For The Design,
Construction, Improvement, Operation And Management Of
The District Energy System**

- *Construction period successfully completed;
Operations period began December 16, 2003*
- *Operations period performance guarantees in place
per Management Agreement, including energy
efficiency, utility usage and operating cost*
- *Parent Company Guaranty sufficient to cover any
unforeseen damages/circumstances per its terms*




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Question 2: Number Customers Served By NTTC & The DES During FY06 (includes Historical Data)

Fiscal Year	System	Number of Buildings Served
FY 2003	Thermal	38
FY 2003	Thermal/DES	37
FY 2005	DES	37
FY 2006	DES	40

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Question 3: Amount of Time Thermal Service to Customers Has Been Interrupted & The Reason for Each

Fiscal Year	System	Outages
FY 2003	Thermal	1 Scheduled Cold Plant Storage Outage from November 10 – 11, 2002
FY 2004	Thermal:	2 Scheduled outages, one for steam (48 hours) and one for Chilled water (72 hours) to interconnect the new Energy Generation Facility to the existing energy distribution system
	DES:	None
FY 2005	DES	1 Scheduled Chill Water Outage (9 hours) on December 19, 2004
FY2006	DES	1 Scheduled Chill Water Outage (12 hours) on February 19-20, 2006
		1 Uncontrollable Circumstance Steam Outage (10 hours) on March 28, 2006 due to a crane accident damaging the natural gas supply lines

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Question 4: Number of NTTC Personnel Hired & Still With Metro or DES in FY06

- Number of Thermal Personnel With Metro: 14*
- Number Thermal Personnel With DES Operations, Constellation Energy Projects and Services, Inc.: 19*

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Question 5: Number & Type OSHA Reportable Accidents & Lost Time Accidents At Thermal & DES During FY06

Fiscal Year	System	OSHA Reportable/Lost Time Accidents
FY 2003	NTTC	NTTC Reportable Accidents: One OSHA reportable accidents (Cut Finger During Baghouse Demolition) and 1 day of lost time
FY 2004	NTTC	NTTC Reportable Accidents: No reportable accidents and no lost time
	DES	DES Reportable Accidents: One reportable accident and no lost time
FY 2005	DES	DES Reportable Accidents: No reportable accidents and no lost time
FY2006	DES	DES Reportable Accidents: No reportable accidents and no lost time

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Question 6: Full Cost of NTTC Operations During FY06

	Un-Audited FY04 Results	Un-Audited FY05 Results	Un-Audited FY06 Results
Projected Metro Fee Paid to NTTC	\$2,605,697	\$292,113	\$0
Thermal Refinancing Debt Service	\$7,813,988	\$7,794,850	\$7,784,010
Total Net Metro Costs	\$10,419,685	\$8,086,963	\$7,784,010

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Question 7: Full Cost of DES Operations During FY06

Item	FY06 Budget	FY06 Spending	Difference
FOC Basic	\$3,552,877	\$3,552,877	\$0
9th Chiller	\$33,291	\$33,291	\$0
C/O 6A	\$65,726	\$65,726	\$0
C/O 6B	\$36,275	\$34,679	-\$1,596
Chemicals	\$129,000	\$116,054	-\$12,946
Engineering	\$52,221	\$0	-\$52,221
Insurance	\$31,682	\$28,394	-\$3,288
Marketing - CEPS Sales Activity	\$49,746	\$0	-\$49,746
- Metro Marketing	\$100,000	\$60,198	-\$39,802
- Incentive Payments	\$16,593	\$16,592	\$0
Metro Incremental Cost	\$549,500	\$658,015	\$108,515
Water	\$787,810	\$479,012	-\$308,798
Natural Gas	\$5,712,967	\$5,037,452	-\$675,515
Electricity	\$3,397,328	\$3,402,933	\$5,606
EDS Repair & Improvement	\$156,663	\$276,823	\$120,160
EDS Surcharge	\$62,561	incl.	
FEA Steam		\$163,948	\$163,948
CHW		\$54,526	\$54,526
Debt Service 2002 Bonds	\$4,296,102	\$4,296,432	\$330
2005 Bonds	\$247,693	\$247,693	\$0
Oper. Reserve Funding Deposit	\$697,440	\$697,440	\$0
Contingency	\$169,024		-\$169,024
Total	\$20,144,500	\$19,222,085	-\$922,414

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Question 8: Metropolitan Government's, The State Of Tennessee, And The Aggregate Of Private Customers Heating And Cooling Costs Annually During FY06

	Steam	Chilled Water	Total
Metro	\$ 2,428,482.77	\$ 3,120,299.75	\$ 5,548,782.52
State	\$ 3,419,211.69	\$ 3,053,660.97	\$ 6,472,872.66
Private	\$ 2,178,228.63	\$ 2,960,344.90	\$ 5,138,573.53
Total	\$ 8,025,923.09	\$ 9,134,305.62	\$ 17,160,228.71

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Question 9: Amount Metro Paid For Additional DES System Capacity Charge Per Annex C, Section B.1 of Service Agreement in FY06

Item	FY 06 Budget	FY 06 Actual	Difference
Metro Funding Amount	\$ 2,173,100	\$ 2,014,941	\$ - 158,159

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Question 10: Annual Cost of Maintaining DES Distribution System Above \$150k Allowance During FY06 (1)

Includes Historical Thermal Energy Distribution System Costs FY 2003

	Capital Projects (3)	EOM/R&I (4)	Total
Fiscal Year 2003	\$ 586,290	\$ 166,105	\$ 52,395
Fiscal Year 2004(2)	\$ 2,024,302	\$ 25,515	\$ 2,049,817
Fiscal Year 2005	\$ 6,926,995	\$ 1,316,145	\$ 8,243,140
Fiscal Year 2006	\$ 3,712,547	\$ 513,989	\$ 4,226,536

(1)

Costs are totals before subtracting the \$150,000 allowance

(2)

Includes costs incurred by both Thermal and DES during FY 2004


(3)

Typically covers upgrade work for new customers, replacement of major system sections, manhole work, etc.

(4)

Extra Ordinary Maintenance by Thermal; Repair & Improvement Cost by DES

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Question 11: Annual Revenue Received From Thermal Tipping Fees During FY06

- No longer applicable

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Question 12: Annual Revenue Received From Customers of the District Energy Distribution System in FY06

Energy Revenues/Sales	\$17,160,229
Late Fees and Other Charges	\$33,364
End-of-Year Adjustments	\$13,551
Total DES Revenues	\$17,207,144

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Question 13: Contract Compliance – Number and Type of Contract Violations For DES During FY06

- *None*

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Appendix

System Review FY2006

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New DES Operates and Looks Great!

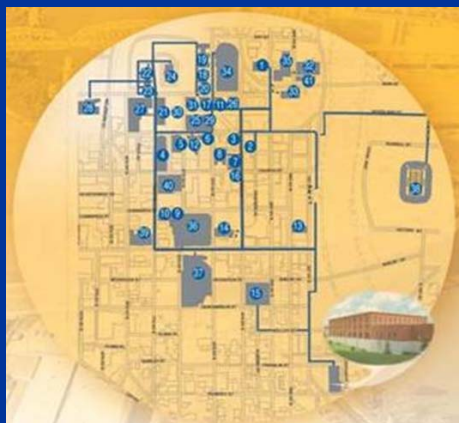


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The System

- 40 buildings served
 - 14 State of Tennessee
 - 10 Metro Nashville Government
 - 16 Private
- 26,000 linear feet of piping
- Services offered
 - Steam
 - Chilled water




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Performance Operations

- Reliability: 99.99%
- Steam
 - 1.45 mmBtu/mlb sendout
 - 17% condensate return
- Chilled Water
 - 0.76 kwhr/ton-hr sendout
 - 1.91 gal/ton-hr sendout make-up water
- Losses
 - Steam = 9.9%
 - Chilled Water = 16.4%

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Energy Generation Facility
(EGF) from Gateway Bridge



- N + 1 Redundancy
- CEPS - 24 Staff

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EGF from Hermitage Avenue



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EGF from Peabody Street



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Chiller and Pump Hall
9 - Trane Chillers
23,400 Tons Capacity

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CHW Distribution Pumps

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Condenser Water Pumps

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Boiler Row
4 - English Boilers
260,000 pph Capacity

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03.16.2005

Mezzanine Area – Water Treatment

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Natural Gas Supply into EGF

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Propane Backup Fuel

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Roof Top Cooling Towers

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Downtown Nashville from EGF Cooling Towers

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Customer Improvements

- Decoupled chilled water services at State Tennessee Tower and Sheraton Nashville Hotel
- Renaissance Hotel and Office Tower and Nashville Convention Center re-piping



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New Metering for Customers


Benefits

- Knowledge of building's energy performance
- Visual feedback of increased energy efficiency efforts
- Compare monthly energy consumptions to historical data
- Forecasting tool for building energy consumption



Chilled Water Flow Meter Yokogawa Meter Panel Steam Flow Meter

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New Metering for Customers

Current Capabilities

- New NDES metering panel: Yokogawa CX2000
 - Ability to view panel display screen from PC via Internet web browser
 - Alarm notifications can be sent directly to customers via email when peak energy usages are exceeded
 - Energy data stored to removable memory cards that can be removed and downloaded for manual data reduction
 - Data can be sent to customer building energy management system



Web Browser Panel Screen Display



Email Alarm Notifications

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New Customers



Metro A.A. Birch Courthouse



Metro Hume Fogg School



Schermerhorn Symphony Center

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New Customers (Cont'd)





**Residential
Condominiums**



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Communications

- Customer meetings – two per year
- Fall and Spring e-Newsletters
- www.nashville.gov/des updates
- Updated brochure printed in FY2006



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2006 International District Energy Association Awards

*Public Sector Leadership Award –
Mayor Bill Purcell*



*System of the Year Award –
Metro Nashville DES and CEPS*



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Reasons Why DES Services Are Preferred Over Self-Heating and Cooling

- ✓ Increased reliability; no scheduled outages
- ✓ Predictable and lower operating costs
- ✓ Frees up capital for funding other costs
- ✓ Metering helps with building Energy Management System
- ✓ Eliminates mist impact on neighbors
- ✓ Beautifies Downtown
- ✓ Supports Metro Nashville

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Great for Nashville!

- ✓ *Supports economic development*
- ✓ *Beautifies Downtown*
- ✓ *Improves the environment*



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